WHAT IS CLAIMED IS:

1. A method of operating a computing system:

determining a temperature associated with an integrated circuit;

operating the integrated circuit with a first performance state as a maximum performance state according to the determined temperature, the first performance state being one of a plurality of performance states available at the determined temperature.

2. The method as recited in claim 1 wherein the integrated circuit operates at multiple performance states within a temperature range associated with the determined temperature.

3. The method as recited in claim 1 wherein a number of performance states available for operating the integrated circuit varies according to the determined temperature.

4. The method as recited in claim 1 wherein a number of performance states available decreases when the determined temperature crosses above a temperature threshold.

5. The method as recited in claim 1 wherein each performance state is defined by at least one of an operating voltage and frequency of the integrated circuit.

6. The method as recited in claim 1 wherein each performance state is defined at least in part by how much of the integrated circuit is being utilized.

7. The method as recited in claim 1 wherein the integrated circuit is a processor.

8. The method as recited in claim 1 further comprising switching to a second performance state as the maximum performance state when the temperature exceeds a first temperature threshold and wherein the second performance state is a lower performance state than the first performance state.

9. The method as recited in claim 8 further comprising switching back to a higher performance state as the maximum performance state when the temperature is determined to be below a second predetermined temperature threshold below the first temperature threshold.

10. . The method as recited in claim 9 wherein the higher performance sate is the first performance state.

11. The method as recited in claim 1 further comprising switching to a second performance state as the maximum performance state when the temperature is determined to be below a predetermined temperature threshold and wherein the second performance state is a higher performance state than the first performance state.

12. The method as recited in claim 8 wherein the determination that the temperature exceeds a first temperature threshold is a determination that the temperature has moved from a first temperature range associated with the first performance state being the maximum performance state to a second temperature range associated with the second performance state being the maximum operating state.

13. The method as recited in claim 12 wherein the first and second temperature ranges have a boundary at the first temperature threshold.

14. A computing system comprising:
an integrated circuit operable at multiple performance states, the performance
        states being defined by at least one of operating voltage and frequency;
and wherein the computing system provides that the integrated circuit, at a
        first detected temperature, has a first maximum performance state and
        a first plurality of lesser performance states; and wherein at a second
        detected temperature, higher than the first detected temperature, the
        integrated circuit has a lower maximum performance state and a
        second plurality of lesser performance states, the lower maximum
        performance state providing lower performance than the first

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maximum performance state in terms of maximum power consumption.

15. The computing system as recited in claim 14 further comprising:

a temperature detection mechanism coupled to detect a temperature associated with the integrated circuit; and

wherein the computing system is operable to change to a different maximum performance state according to the detected temperature.

16. The computing system as recited in claim 15 wherein the detected temperature is one of ambient temperature, junction temperature, case temperature, or die temperature.

17. The computing system as recited in claim 15 wherein a higher detected temperature results in a lower maximum performance state.

18. The computing system as recited in claim 15 wherein the number of performance states available varies according to the detected temperature.

19. The computing system as recited in claim 15 wherein the integrated circuit is a processor.

20. A computer program product encoded in at least one computer readable medium, the computer program product comprising:

a plurality of groups of performance operating states, each of the groups of performance operating states having a different maximum operating state, the groups of operating states corresponding to different temperature related to a processor; and

an instruction sequence executable to change to a different group of performance operating states and thereby a different maximum operating state according to a detected temperature associated with the computer system.

21. The computer program product of 20, wherein the at least one computer readable medium is selected from the set of a disk, tape or other magnetic, optical, or electronic storage medium and a network, wire line, wireless or other communications medium.

22. A computing system comprising:

means for determining a temperature associated with a processor, the processor having a plurality of groups of performance states associated with each of a plurality of temperature ranges, each of the groups having a different maximum performance state; and

means for changing from a first group of performance states to a second group of performance states according to the determined temperature, thereby changing the available maximum performance state available for processor operation

23. A method of providing a variable maximum die temperature for an integrated circuit in a computer system having a plurality of different maximum performance states, comprising increasing the maximum allowable die temperature as a maximum allowable performance state is decreased.